Code No: **RT41057**   # R13   **Set No. 1**

IV B.Tech I Semester Supplementary Examinations, February/March - 2018
ARTIFICIAL INTELLIGENCE
(Computer Science and Engineering)

Time: 3 hours   Max. Marks: 70

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any THEE questions from Part-B
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PART–A *(22 Marks)*

1. a) What are the applications of AI? [3]
   b) What is heuristic search technique? Explain it with example? [4]
   c) What is Resolution? [3]
   d) What is a semantic net? Give examples? [4]
   e) Describe in brief about rule based expert system. [4]
   f) What are the operations in fuzzy set? [4]

PART–B *(3x16 = 48 Marks)*

2. a) Define Artificial Intelligence. Explain the techniques of A.I. Also describe the characteristics of Artificial Intelligence. [8]
   b) Explain the state space representation of Water – Jug problem. [8]

3. a) Define Heuristic search? What are the advantages of Heuristic search? [8]
   b) Describe the mini max algorithm with an example. [8]

4. a) What is predicate logic? Explain the predicate logic representation with reference to suitable example. [8]
   b) Consider the following sentences:
      Marcus was a man
      Marcus was a Pompeian
      Marcus was born in 40 AD
      All men are mortal
      All pompeians died the Volcano erupted in 79 AD
      No mortal lives for more than 150 years
      i) Convert them to clause form
      ii) Answer the question "is Marcus dead now " in two different ways. Clearly state the assumptions made. [8]

5. a) Give semantic nets to describe the following:
      Narayan is a writer
      Narayan lives in Bombay
      Ishwar is a teacher
      Ishwar lives in Bangalore.
      Narayan sent a copy of his book to Ishwar
      Ishwar sent his thanks to Narayan. [8]

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b) Describe your chair using a semantic net.   [8]

6. a) Explain the process of knowledge acquisition and validation for expert systems.   [8]
    b) List out and explain the characteristics features of expert system.   [8]

7. a) Define certainty factor. What are the components of certainty factor?   [8]
    b) Explain Bayesian method of reasoning.   [8]